UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

SINGULAR COMPUTING LLC, Plaintiff, v. GOOGLE LLC, Defendant.	Civil Action No. 1:19-cv-12551 FDS Hon. F. Dennis Saylor IV

DEFENDANT GOOGLE LLC'S OPPOSITION TO SINGULAR'S MOTION *IN LIMINE* NO. 9

I. INTRODUCTION

Singular's motion *in limine* No. 9 seeks to exclude "Google from presenting evidence and testimony that members of the industry use Graphics Processing Units ("GPUs") for Artificial Intelligence ("AI") training application." Dkt. 626 ("Mot.") at 1, 4. Singular seeks to preclude *Google* from using such evidence even though its own damages expert – Mr. Green – supports his damages theory with numerous references and citations to documents about the industry use of GPUs. In essence, Singular's motion improperly seeks to preclude Google from presenting evidence or argument explaining why Singular's damages calculations are flawed. Singular's motion should be denied.

A fundamental premise of Singular's damages theory is that, if Google could not infringe, it would have needed to replace its TPU systems with third-party GPUs. *See* Ex. 1 (Green Rpt.) at 63, Section V.C. One of the many significant errors underlying that premise is Mr. Green's faulty assumption that, without TPUs, Google would have no choice but to turn to GPUs using the *fp32* number format as opposed to GPUs using *fp16*. Although Google's ability to use GPUs operating in *fp16* number formats is supported by significant documentary evidence and deposition testimony, Mr. Green erroneously concluded that the *fp16* number format was not available for use on GPUs in 2017, a conclusion that artificially and significantly inflates his royalty numbers. To counter Singular's flawed damages analysis, Google's damages expert and multiple Google witnesses will testify that, if Google had no choice but to use GPUs in 2017, Google would have used the *fp16* number format at an exponentially lower cost than Mr. Green contends. Specifically, these witnesses will testify – as many of them did at deposition – that *fp16* was a known and available alternative in the industry and at Google for AI training in 2017. Google will use this testimony and related documents about industry use of *fp16* to show that, although Mr. Green was aware of industry use of *fp16*, he chose to use a slower – and thus far more expensive – alternative for his damages opinion. Thus, Singular's MIL No. 9 is no more

than a backdoor attempt to prevent Google from highlighting these fundamental flaws in Mr. Green's opinions.

Singular's sole basis for seeking to exclude such information is under FRE 403. But FRE 403 does not provide a basis here to exclude highly relevant evidence, testimony, and argument that undermines Singular's damages theories – especially when Singular's own damages expert relies on documents explicitly referencing the industry's use of GPUs, including the industry use of the *fp16* number format for AI in 2017.[1] The evidence that Singular seeks to exclude regarding the industry's use of GPUs for AI training may be harmful to the merits of Singular's damages theories, but that is not "unfair prejudice" under Rule 403. To the contrary, if this evidence is at all prejudicial, it is entirely fair prejudice because it will illuminate for the jury a glaring flaw in Singular's damages theories.

II. ARGUMENT

Singular's motion seeks to preclude "Google . . . from presenting evidence that members of the industry use GPUs for AI training applications."[2] Mot. at 1. Singular's sole basis for seeking to exclude such information is under FRE 403, apparently because Singular claims that such evidence is either "legally erroneous" or "confus[ing]." *Id.* at 2. But FRE 403 provides no basis to exclude this evidence.

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[1] Singular's motion should be denied outright. To the extent, however, the Court were to grant Singular's request, the Court should preclude all parties from presenting such evidence, including but not limited to, through Singular's damages expert Mr. Green.

[2] Singular's motion does not clearly state what type of "industry use" evidence it is seeking to exclude, including whether it is seeking to exclude evidence regarding NVidia, the capabilities of GPUs created by NVidia, or how any third parties use GPUs – all topics which Mr. Green himself discusses in his report. Singular's motion never explains which entities constitute "the industry," making it difficult to understand the breadth of relief that Singular requests. *See, e.g.*, *United States v. Holmes*, No. 5:18-cr-00258-EJD-1, 2021 WL 2044470, at *25 (N.D. Cal. May 22, 2021) ("The failure to specify the evidence that a motion *in limine* seek[s] to exclude constitutes a sufficient basis upon which to deny th[e] motion."). Indeed, despite the broad nature of Singular's requested relief, most of Singular's arguments in this motion focus on evidence or testimony regarding industry use of GPU chips implementing the *fp16* number format, even though Singular has a separate motion *in limine* on this. To the extent Singular is using this motion to exclude evidence regarding how GPU chips could use *fp16*, Google also addresses that issue in its opposition to Singular's motion *in limine* No. 7.

First, Singular's request to preclude Google from presenting evidence regarding "the industry use of [GPUs] for [AI]" ignores that Singular's own damages theory is premised on similar evidence. Fed. R. Evid. 403 does not permit a party to preclude evidence, cross-examination or argument about the errors and assumptions underlying that same party's damages calculation.

Singular's reasonable royalty analysis turns on Mr. Green's evaluation of [redacted] Ex. 1 (Green Rpt.) at 65. NVIDIA is one of the "members of the industry" that Singular refers to in this motion. *See* Mot. at 1 (citing deposition testimony about NVidia documentation). Furthermore, in explaining why he believes that GPUs would have been an acceptable and available alternative for Google to use for AI, Mr. Green notes that "GPUs have been used in industries such as machine learning, artificial intelligence, and cryptocurrency mining." Ex. 1 (Green Rpt.) at 8. In support of his damages theory, Mr. Green explains:

[redacted]

Id. at 57 (emphasis added).

Mr. Green's report also cites to multiple documents from 2017 or earlier explicitly referring to the industry use of not just GPUs but also of **GPUs using *fp16* instead of *fp32* for AI training**. *See*, *e.g.*, Ex. 1 (Green Rpt.) at 68 n. 471 (citing a public May 2017 article from *ARSTechnica* discussing AI and the use of *fp16* on NVIDIA V100 GPUs); *id.* at 15 n. 93 (citing public May 2017 article regarding the use of *fp16* on NVIDIA GPUs); *see also, e.g.,* Ex. 2 (GOOG-SING-00074536) at -565 (cited in the Green Rpt. at 50); Ex. 3 (GOOG-SING-00237405) at -410 (cited in the Green Rpt. at 68). Thus, Singular's damages theories rely on, and

cite to, much of the exact industry use of GPU systems for AI that Singular seeks to preclude Google from presenting.[3] Given the damages theory that Singular intends to present to the jury, Singular cannot dispute that industry use of GPUs is relevant to this case.

In short, although Singular intends to argue that GPUs were what Google would have used in 2017 if it could not use TPUs, Singular essentially seeks to preclude Google from presenting any evidence, arguments, or testimony addressing the weaknesses in Singular's own theory. As a matter of equity, it cannot be true that Singular's reliance on GPUs and industry use is relevant, but that Google's reliance would risk "unfair prejudice" or "confusion." Given Mr. Green's GPU-related assumptions, and his reliance on a number of industry documents to support his analysis, Google should be permitted to cross-examine Mr. Green and provide testimony and argument in response to Mr. Green's GPU-based cost-savings analysis. Google should also be permitted to ask Mr. Green (and others) about any aspects of the documents regarding industry use of GPUs that Mr. Green reviewed (or could have reviewed) but chose to ignore in reaching his conclusions.

Second, to the extent Singular disagrees with the documents or underlying facts regarding the industry's use of GPUs in 2017, that is not an issue of unfair prejudice given that Singular's damages theory is premised on such usage.[4] Instead, at most, Singular's concerns go to weight, not admissibility, and can be addressed by cross-examination. *Cf. Summit 6, LLC v.*

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[3] To mask Mr. Green's reliance on industry use of GPUs, Singular's motion *in limine* makes a number of inaccurate factual representations that contradict Mr. Green's report. For example, Singular claims that "the earliest reference of other members of the industry utilizing GPUs for AI was ***in 2020***, three years after the hypothetical negotiation." Mot. at 2 (emphasis added). As cited above, Mr. Green's expert report contains numerous references to the use of GPUs for AI in 2017. *See supra* at 2 (citing Green Rpt. at 57).

[4] Singular argues that presenting this information to the jury would cause confusion because it could lead to "legally erroneous argument." *See* Mot. at 2 (citing *Sec. & Exch. Comm'n v. Ambassador Advisors, LLC*, No. 5:20-CV-02274-JMG, 2022 WL 2188145, at *4 (E.D. Pa. Feb. 28, 2022). Mr. Green relies on and cites to many of these documents in his expert report; to the extent there is any risk of confusion, that risk applies equally to Singular's use of the documents. Either the documents should be excluded wholesale or both sides should be allowed to rely on them and cure any concerns through cross-examination.

Samsung Elecs. Co., 802 F.3d 1283, 1296 (Fed. Cir. 2015) (quoting *Daubert. Merrell Dow Pharmaceuticals, Inc*, 509 U.S. 579, 596 (1993)) ("Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.").[5] Motions *in limine* are not the appropriate place to litigate factual disputes, which are properly decided by the jury. Singular's concerns, to the extent they have merit, "are best addressed through cross-examination of Defendants' witnesses as well as presentation of competing evidence." *Enova Tech. Corp. v. Initio Corp.*, No. CV 10-04-LPS, 2013 WL 12156023, at *1 (D. Del. Jan. 31, 2013).

For the reasons set forth above, Singular's motion *in limine* No. 9 should be denied.

Respectfully submitted,

Dated: December 13, 2023

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[5] Singular argues that evidence of industry use by other industry participants should be excluded as lacking foundation if proffered by a "nonexpert trial witness." Mot. at 3. As an initial matter, Singular provides no support for its baseless assertion that a non-expert witness would necessarily "lack personal knowledge of how other industry participants use GPUs for AI training applications." *Id.* Moreover, evidentiary rulings regarding a witness' personal knowledge or foundation are more appropriately deferred for trial and the context of specific questioning. *See, e.g., VBS Distribution, Inc. v. Nutrivita Laboratories, Inc.*, No. SACV-16-01553-CJC (DFMx), 2018 WL 9946319, at *4 (C.D. Cal. May 7, 2018) ("Evidence will be excluded *in limine* only when the evidence is clearly inadmissible on all potential grounds. . . . [E]videntiary rulings should be deferred until trial so that questions of foundation, relevancy and potential prejudice may be resolved in proper context.").

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CERTIFICATE OF SERVICE

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